IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:) Examiner: Shawn S. An
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CHIH-TA STAR SUNG ET AL.) Art Unit: 2621
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Application No.: 10/626,917)
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Filed: 25th, July, 2003)
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For: MOTION ESTIMATION METHOD AND APPARATUS FOR VIDEO DATA COMPRESSION)

RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated on 3rd December, 2006, (received on December 15th, 2006 wit stamped dated 11th, December, 2007), applicant respectfully submits the following remarks. This application contains claims 1-23, of which claim 1-4, 6-10, 12-14, and 16-23 are rejected, and claims 5, 11 and 15 are allowable but objected to as being dependent upon rejected base claims.

The key difference between this invention to the cited fours granted patents: This invention unveils mainly on a group of macroblocks of pixels can be selectively determined which needs to go through the best matching motion estimation and which

macroblocks need more refined resolution like 1/2 or 1/4 pixel resolution which results in much high efficiency. The following table summarizes the difference.

Patent Nr. Inventor	Summary of invention & difference between our invention
US-6,269,174 B1 Koba et al	A). Saving ALL macroblocks' motion vectors of previous picture into memory B). Hierarchically estimate the motion vector **Main difference:** Our invention saves partial frame or full frame motion vectors. And ours does not adopt "Hierarchically" motion estimation mechanism.
US-6,829,373 B2 Piccinelli..	A). search window used estimated motion adaptively changed according to threshold values **Main difference:** Our invention unveils nothing with the dimension of searching windows.
US-5,757,668 Zhu et al	A). dynamic threshold selector with a predetermined scheme based on the quantization step-size QP; and B). frame-to-frame motion estimation termination. **Main difference:** Our invention unveils nothing with quantization stepsize QP or early termination of motion estimation
US-2004/0081361 A1Chen...	A). Motion estimation by using Walsh-Hadamard transform (WHT) algorithm B). A hierarchical sub-sampling method, used to process a low-resolution image **Main difference:** Our invention of motion estimation is in Y-component domain NOT in WHT domain. And ours does not use "Hierarchically" motion estimation mechanism.